

ACCESSION #: 9903300336

NON-PUBLIC?: N

LICENSEE EVENT REPORT (LER)

FACILITY NAME: Grand Gulf Nuclear Station, Unit 1 PAGE: 1 OF 3

DOCKET NUMBER: 05000416

TITLE: Manual Reactor Scram Due to Decreasing Condenser Vacuum

EVENT DATE: 02/21/99 LER #: 99-003-00 REPORT DATE: 03/19/99

OTHER FACILITIES INVOLVED: N/A DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 083

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:

50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: Charles D. Holifield/Senior Licensing

Engineer TELEPHONE: (601) 437-6439

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On February 21, 1999, a reactor SCRAM was manually inserted as part of a preplanned sequence based on specific plant conditions related to the condenser system. Failure of a condenser expansion joint resulted in rapid condenser vacuum decrease that led to a rapid plant shutdown. Continued decreasing main condenser vacuum following the reactor SCRAM led operators to close the main steamline isolation valves. Reactor pressure and level were controlled using several safety relief valves and the reactor core isolation cooling system.

All control rods inserted fully and reactor level did not decrease below the automatic Emergency Core Cooling System actuation set point. The Reactor Core Isolation Cooling system was manually initiated for vessel level and pressure control and several SRVs were manually cycled for pressure control.

The health and safety of the general public were not compromised by this event. Because the reactor was manually SCRAMMED in anticipation of a possible automatic trip due to loss of vacuum, this event is being reported pursuant to 10CFR50.73(a)(2)(iv).

TEXT PAGE 2 OF 3

A. Reportable Occurrence

On February 21, 1999, at 2050, a reactor SCRAM was manually inserted as part of a preplanned sequence based on specific plant conditions related to the condenser system [SG]. Because the reactor was manually SCRAMMED in anticipation of an automatic trip due to loss of vacuum, this event is being reported pursuant to 10CFR50.73(a)(2)(iv).

B. Initial Conditions

At the time of the event the reactor was in OPERATIONAL CONDITION 1 with reactor power at 83 percent and in the midst of a downpower from 100 percent in accordance with 101-2, "Power Operations", and ONEP 05-1-02-V-8, "Loss of Condenser Vacuum". Prior to the plant trip, reactor temperature was approximately 530 degrees F and reactor vessel level at approximately 36 inches. 'A' Condenser Neck Seal Expansion Joint Makeup valve had slowly repositioned from approximately 15% open to 98% open with condenser vacuum at 25.3 inches Hg and decreasing when the operators topped the reactor manually. Off Gas flow rate was approximately 42 scfm.

Standing Order 99-0009 had been issued on February 15, 1999, which informed operators of the potential for a small leak in the HP condenser expansion joint. The standing order also provided a preplanned sequence to be taken at specific trigger points for parameters such as expansion joint valve position and condenser vacuum.

C. Description of Occurrence

On February 21, 1999, starting at 1700, GGNS was in normal operation at 100 percent power when the 'A' Condenser Neck Seal Expansion Joint Makeup valve began to reposition slowly from 15% open. When the expansion joint seal low level alarm came in and vacuum began to decrease, operators responded in accordance with the preplanned sequence by reducing recirculation flow in fast detent and inserted a manual scram by placing the mode switch to the shutdown position per ONEP 05-1-02-V-8.

About one hour following the SCRAM (at 2147), continued vacuum decrease necessitated closure of the Main Steam Isolation Valves (MSIV) at approximately 10 inches Hg vacuum to avoid auto-closure of the MSIVs. Reactor pressure was controlled by alternate manual cycling of several safety relief valves (SRVs). No Emergency Core Cooling System (ECCS) actuations occurred and all reactor protection system (RPS) channels actuated as expected. Reactor Core Isolation Cooling (RCIC) [BN] was manually started and flow established to the

vessel on two occasions for a total of approximately 6 minutes. After securing RCIC, the trip/throttle valve linkage was verified to be in the proper standby position. A controlled cooldown rate was established and the plant was stabilized and an investigation commenced for the loss of condenser vacuum.

TEXT PAGE 3 OF 3

D. Apparent Cause

The cause of the plant trip was a manual scram by the operators which was an appropriate action for a lowering condenser vacuum.

The cause of the loss of condenser vacuum was the failure of an elastomeric expansion joint seal between the turbine and the HP condenser.

E. Corrective Actions

Immediate Corrective Actions:

- o A new turbine expansion joint boot seal was installed on the 'A' and 'C' condensers. The turbine expansion joint boot seals were inspected for the '13' condenser.

Long Term Corrective Actions:

- o Root Cause Analysis Report number 99-07 was initiated to identify the cause of the condenser boot seal failure and determine corrective actions to prevent reoccurrence.

F. Safety Assessment

This event did not hinder the ability of any systems to perform

their safety functions. No auto actuation signals for ECCS initiation or SRV actuation were received. The manual scram was initiated by placing the mode switch to shutdown which resulted in an APRM setpoint change to about 15 percent when the mode switch passed through startup on the movement to shut down. This did give an expected auto scram signal. Minimum recorded reactor vessel water level was -29.32 inches on wide range level instrumentation, which is about 137 inches above the top of active fuel. All ECCS were available to perform their safety function. Six safety relief valves were manually cycled to control reactor pressure and RCIC was manually initiated to maintain level on two occasions for a total of approximately 6 minutes. The health and safety of the general public were not compromised as a result of this event.

G. Additional Information

Previous reactor scram events related to condenser vacuum degradation occurred on August 14, 1989 (Scram 56) and July 12, 1995 (Scram 88). The loss of vacuum in both of these events was attributed to a failed condenser boot seal. As a result of this event, Condition Report GGCR 1999-0220-00 and Root Cause Analysis Report RCDL#99-07 were generated.

Energy Industry Identification System (EIIS) codes are identified in the text within brackets [].

Entergy

Entergy Operations, Inc.

P.O. Box 756

Port Gibson MS 39150

Tel. 601-437-6409

Fax 601-437-2795

William A. Eaton

"illegible print"

Operations

Grand Gulf Nuclear Station

March 19, 1999

U.S. Nuclear Regulatory Commission

Mail Stop P-1-37

Washington, D.C. 20555

Attention: Document Control Desk

SUBJECT: Grand Gulf Nuclear Station

Docket No. 50-416

License No. NPF-29

Manual Reactor Scram Due to Decreasing Condenser Vacuum

LER 99-003-00

GNRO-99/00026

Gentlemen:

Attached is Licensee Event Report (LER) 99-003-00 which is a final

report.

Yours truly,

WAE/CDH

attachment

cc: Ms. J. L. Dixon-Herrity, GGNS Senior Resident (w/a)

Mr. L. J. Smith (Wise Carter) (w/a)

Mr. N. S. Reynolds (w/a)

Mr. H. L. Thomas (w/o)

Mr. J. W. Yelverton (w/a)

Mr. Ellis W. Merschoff (w/a)

Regional Administrator

U.S. Nuclear Regulatory Commission

Region IV

611 Ryan Plaza Drive Suite 400

Arlington, TX 76011

Mr. S. P. Sekerak, Project Manager (w/2)

Office of Nuclear Reactor Regulation

U.S. Nuclear Regulatory Commission

Mail Stop 1131-13-D

Washington, D.C. 20555

ATTACHMENT 1 TO 9903300336 PAGE 2 OF 2

March 19, 1999

GNRO-99/00026

Page 2 of 2

bcc: Ms. C. W. Gunn (w/3)

Required Reading Coordinator (w/a)

SRC Secretary (w/a)

TRG Secretary (w/a)

PSRC (w/a)

File (LCTS) (w/a)

File (RPTS) (w/a)

File (NS&RA) (w/a)

File (Central) (w/a) (8)

INPO Records Center (w/a)

700 Galleria Parkway

Atlanta, Georgia 30339-5957

Mr. J. Sipek (w/a)

Illinois Power Company

Clinton Power Station Mail Stop V-920

P.O. Box 678

Clinton, Illinois 61727

ccmail: *_ /Mr. W. B. Abraham

Mr. G. R. Ashley (ANO - LIC)

Mr. W. J. Beck (RB - LIC)

*_ /Mr. S. J. Bethay (ECH - LIC)

Mr. J. G. Booth

Mr. D. G. Bost

*_/Mr. C. A. Bottemiller

Mr. P. W. Brewer

Mr. C. E. Brooks

Mr. O. P. Bulich (RB - OE)

Mr. F. G. Burford

*_/Mr. R. W. Byrd

Mr. W. C. Cade

Mr. R. W. Carroll

Ms. T. M. Carter

Mr. W. F. Clark

Mr. D. G. Cupstid

Mr. J. P. Czaika

*_/Mr. L. F. Daughtery

Mr. G. G. Davie (W3 - LIC)

Ms. L. F. Davis

Mr. D. R. Denton (ANO)

Mr. M. A. Dietrich (RB - QP)

*_/Mr. C. M. Dugger (W3 VP)

*_/Mr. W. A. Eaton

Mr. C. W. Ellsaesser

Mr. J. L. Ensley (ESI)

*_/Mr. E. C. Ewing (W3 - LIC)

*_/Mr. R. E. Garrison

Mr. T. J. Gaudet (W3 - LIC)

Ms. C. W. Gunn

Mr. C. D. Holifield

Mr. W. K. Hughey

Mr. M. G. Hurley

*-/Mr. C. R. Hutchinson (ANO - VP)

IEA (ANO - OE)

*_/Mr. D. E. James (ANO - LIC)

*_/Mr. D. L. Janecek

*_/Mr. R. S. Johnson

*_/Mr. M. L. Jones

Mr. R. J. King (RB - LIC)

*_/Mr. C. W. Lambert

*_/Mr. M. J. Larson

*_/Ms. J. M. Manzella (W3 - QP)

*_/Mr. J. R. McGaha (ECH)

*_/Mr. T. O. McIntyre

*_/Mr. R. V. Moomaw

*_/Mr. J. E. Owens

*_/Mr. S. D. Reeves

*_/Mr. J. C. Roberts

Mr. J. L. Robertson

Mr. C. D. Stafford

Mr. G. D. Swords

Mr. L. G. Temple

Ms. E. A. Turnage

*_/Mr. R. L. Thomas (ECH)

Mr. T. H. Thurmon

Mr. J. D. Vandergrift (ANO - LIC)

Mr. J. E. Venable

*_/Mr. A. D. Wells (RB)

Mr. R. A. Wilson

*_/Always include on distribution

*** END OF DOCUMENT ***
